

CLAIMS

1. Protein having at least a portion of the sequence SEQ ID N° 3 following :

5 Asp Pro Glu Pro Ala Pro Pro Val Pro Thr Thr Ala Ala Ser Pro
Pro Ser Thr Ala Ala Ala Pro Pro Ala Pro Ala Thr Pro Val Ala
Pro Pro Pro Pro Ala Ala Ala Asn Thr Pro Asn Ala Gln Pro Gly
Asp Pro Asn Ala Ala Pro Pro Pro Ala Asp Pro Asn Ala Pro Pro
Pro Pro Val Ile Ala Pro Asn Ala Pro Gln Pro Val Arg Ile Asp
Asn Pro Val Gly Gly Phe Ser Phe Ala Leu Pro Ala Gly Trp Val
10 Glu Ser Asp Ala Ala His Phe Asp Tyr Gly Ser Ala Leu Leu Ser
Lys Thr Thr Gly Asp Pro Pro Phe Pro Gly Gln Pro Pro Pro Val
Ala Asn Asp Thr Arg Ile Val Leu Gly Arg Leu Asp Gln Lys Leu
Tyr Ala Ser Ala Glu Ala Thr Asp Ser Lys Ala Ala Ala Arg Leu
Gly Ser Asp Met Gly Glu Phe Tyr Met Pro Tyr Pro Gly Thr Arg
15 Ile Asn Gln Glu Thr Val Ser Leu Asp Ala Asn Gly Val Ser Gly
Ser Ala Ser Tyr Tyr Glu Val Lys Phe Ser Asp Pro Ser Lys Pro
Asn Gly Gln Ile Trp Thr Gly Val Ile Gly Ser Pro Ala Ala Asn
Ala Pro Asp Ala Gly Pro Pro Gln Arg Trp Phe Val Val Trp Leu
Gly Thr Ala Asn Asn Pro Val Asp Lys Gly Ala Ala Lys Ala Leu
20 Ala Glu Ser Ile Arg Pro Leu Val Ala Pro Pro Pro Ala Pro Ala
Pro Ala Pro Ala Glu Pro Ala Pro Ala Pro Ala Gly Glu
Val Ala Pro Thr Pro Thr Thr Pro Thr Pro Gln Arg Thr Leu Pro
Ala

2. Protein according to claim 1 characterized in that it
25 has at least a portion of the sequence SEQ ID N° 2 following :

Met His Gln Val Asp Pro Asn Leu Thr Arg Arg Lys Gly Arg Leu
Ala Ala Leu Ala Ile Ala Ala Met Ala Ser Ala Ser Leu Val Thr
Val Ala Val Pro Ala Thr Ala Asn Ala Asp Pro Glu Pro Ala Pro
Pro Val Pro Thr Thr Ala Ala Ser Pro Pro Ser Thr Ala Ala Ala
5 Pro Pro Ala Pro Ala Thr Pro Val Ala Pro Pro Pro Pro Ala Ala
Ala Asn Thr Pro Asn Ala Gln Pro Gly Asp Pro Asn Ala Ala Pro
Pro Pro Ala Asp Pro Asn Ala Pro Pro Pro Pro Val Ile Ala Pro
Asn Ala Pro Gln Pro Val Arg Ile Asp Asn Pro Val Gly Gly Phe
Ser Phe Ala Leu Pro Ala Gly Trp Val Glu Ser Asp Ala Ala His
10 Phe Asp Tyr Gly Ser Ala Leu Leu Ser Lys Thr Thr Gly Asp Pro
Pro Phe Pro Gly Gln Pro Pro Pro Val Ala Asn Asp Thr Arg Ile
Val Leu Gly Arg Leu Asp Gln Lys Leu Tyr Ala Ser Ala Glu Ala
Thr Asp Ser Lys Ala Ala Ala Arg Leu Gly Ser Asp Met Gly Glu
Phe Tyr Met Pro Tyr Pro Gly Thr Arg Ile Asn Gln Glu Thr Val
15 Ser Leu Asp Ala Asn Gly Val Ser Gly Ser Ala Ser Tyr Tyr Glu
Val Lys Phe Ser Asp Pro Ser Lys Pro Asn Gly Gln Ile Trp Thr
Gly Val Ile Gly Ser Pro Ala Ala Asn Ala Pro Asp Ala Gly Pro
Pro Gln Arg Trp Phe Val Val Trp Leu Gly Thr Ala Asn Asn Pro
Val Asp Lys Gly Ala Ala Lys Ala Leu Ala Glu Ser Ile Arg Pro
20 Leu Val Ala Pro Pro Pro Ala Pro Ala Pro Ala Pro Ala Glu Pro
Ala Pro Ala Pro Ala Pro Ala Gly Glu Val Ala Pro Thr Pro Thr
Thr Pro Thr Pro Gln Arg Thr Leu Pro Ala

3. Hybrid protein comprising at least a portion of one of
the sequences SEQ ID N°2 or SEQ ID N°3 according to one of claims
25 1 and 2 and a sequence of a peptide or a protein able to induce

an immune response.

4. Protein according to claim 3, characterized in that the immune response is a humoral response and/or a cellular response.

5. Protein according to one of claims 3 and 4 characterized in that the peptide or the protein is a portion, in particular an epitope, of diphtheria toxin, tetanus toxin, the HBS antigen of the HBV virus, or the VP1 antigen of the poliomyelitis virus or any other viral toxin or antigen.

10 6. Oligonucleotide coding for a protein according to one of claims 1 to 5.

7. DNA according to claim 6 characterized in that it has at least a portion of the sequence SEQ ID N°1 following:

15 GT GCTCGGGCCC AACGGTGCGG GCAAGTCCAC CGCCCTGCAT GTTATCGCGG
GGCTGCTTCG CCCCCGACGC GGGCTTGTA CGTTTGGGGG ACCGGGTGTT
GACCGACACC GAGGCCGGGG TGAATGTGGC GACCCACGAC CGTCGAGTCG
GGCTGCTGTT GCAAGACCCG TTGTTGTTTC CACACCTGAG CGTGGCCAAA
AACGTGGCCT TCGGACCACA ATGCCGTCCG GGGATGTTTG GGTCCGGGCG
CGCGCTAGGA CAAGGGCGTC GGCACGCGA TGGCTGCGCG AGGTGAACGC
20 CGAGCAGTTC GCCGACCGTA AGCCTCGTCA GCTATCCGGG GGCCAAGCCC
AGCGCGTCGC CATCGCGCGA GCGTTGGCGG CCGAACCGGA TGTGTTGCTG
CTCGACGAGC CGCTGACCGG ACTCGATGTG GCCGCGGCCG CGGGTATCCG
TTCGGTGTTG CGTAGTGTCG TCGCGAGGAG CGGTTGCGCG GTAGTCCTGA
CGACCCATGA CCTGCTGGAC GTGTTACGC TGGCCGACCG GGTATTGGTG
25 CTCGAGTCCG GCACGATCGC CGAGATCGGC CCGGTTGCCG ATGTGCTTAC

CGCACCTCGC AGTCGTTTCG GAGCCCGTAT CGCCGGAGTC AACCTGGTCA
ATGGGACCAT TGGTCCGGAC GGCTCGCTGC GCACCCAGTC CGGCGCCCAC
TGGTACGGCA CCCCAGTCCA GGATTTCCT ACTGGGCATG AGGCAATCGC
GGTGTTCCTG CCGACGGCGG TGGCGGTGTA TCCGGAACCG CCGCACGGAA
5 GCGCGCGCAA TATCGTCGGG CTGACGGTGG CGGAGGTGGA TACCCGCGGA
CCCACGGTCC TGGTGCGCGG GCATGATCAG CCTGGTGGCG CGCCTGGCCT
TCCCGCATGC ATCACCGTCG ATGCCGCCAC CGAACTGCGT GTGGCGCCCCG
GATCCGCGCT GTGGTTCAGC GTCAAGGCGC AGGAAGTGGC CCTGCACCCG
GCACCCACC AACACGCCAG TTCATGAGCC GACCCGCGCC GTCCTTGCGT
10 CGCGCCGTTA ACACGGTAGG TTCTTCGCCA TGCATCAGGT GGACCCCAAC
TTGACACGTC GCAAGGGACG ATTGGCGGCA CTGGCTATCG CGGCGATGGC
CAGCGCCAGC CTGGTGACCG TTGCGGTGCC CGCGACCGCC AACGCCGATC
CGGAGCCAGC GCCCCCGGTA CCCACAACGG CCGCCTCGCC GCCGTGACG
GCTGCAGCGC CACCCGCACC GGCGACACCT GTTGCCCCC CACCACCGGC
15 CGCCGCCAAC ACGCCGAATG CCCAGCCGGG CGATCCCAAC GCAGCACCTC
CGCCGGCCGA CCCGAACGCA CCGCCGCCAC CTGTCAATTG CCAAACGCA
CCCCAACCTG TCCGGATCGA CAACCCGGTT GGAGGATTCA GCTTCGCGCT
GCCTGCTGGC TGGGTGGAGT CTGACGCCGC CCACTTCGAC TACGGTTCAG
CACTCCTCAG CAAAACCACC GGGGACCCGC CATTTCCTCG ACAGCCGCCG
20 CCGGTGGCCA ATGACACCCG TATCGTGCTC GGCCGGCTAG ACCAAAAGCT
TTACGCCAGC GCCGAAGCCA CCGACTCCAA GGCCGCGGCC CGGTGGGGCT
CGGACATGGG TGAGTTCTAT ATGCCCTACC CGGGCACCCG GATCAACCAG
GAAACCGTCT CGCTCGACGC CAACGGGGTG TCTGGAAGCG CGTCGTATTA
CGAAGTCAAG TTCAGCGATC CGAGTAAGCC GAACGGCCAG ATCTGGACGG
25 GCGTAATCGG CTCGCCCCG GCGAACGCAC CGGACGCCGG GCCCCCTCAG

CGCTGGTTTG TGGTATGGCT CGGGACCGCC AACAAACCCGG TGGACAAGGG
CGCGGCCAAG GCGCTGGCCG AATCGATCCG GCCTTTGGTC GCCCCGCCGC
CGGCGCCGGC ACCGGCTCCT GCAGAGCCCG CTCCGGCGCC GCGCCGGCC
GGGGAAGTCG CTCCTACCCC GACGACACCG ACACCGCAGC GGACCTTACC
5 GGCCTGACC

8. Microorganism producing a protein according to one of claims 1 to 5.

10 9. Microorganism according to claim 8, characterized in that said protein is present at least in part on its surface.

10. Microorganism according to claim 9, characterized in that it is a bacterium.

15 11. Microorganism according to one of claims 8 to 10, characterized in that it is a mycobacterium, in particular M. bovis BCG.

12. Pharmaceutical composition comprising an effective quantity of a protein or a microorganism according to one of claims 1 to 5 and 8 to 11 in combination with pharmaceutically compatible diluents or adjuvants.

20 13. Drug or vaccine comprising a protein or a microorganism according to one of claims 1 to 5 and 8 to 11.

25 14. Process for detecting specific tuberculosis antibodies, in which a biological fluid, liable to contain said antibodies, is brought into contact with a protein according to one of claims 1 to 5.

15. Process according to claim 14, characterized in that said proteins are fixed on a support.

5 16. Assay kit for implementing the process according to one of claims 14 and 15, comprising at least a protein preparation according to one of claims 1 to 5 and buffer solutions for using the process.

17. Kit according to claim 16 characterized in that it comprises a reagent for revealing the antibody-protein complex formed.

10 18. Antibody reacting specifically with a protein according to one of claims 1 to 5.